Remarks

Claims 1, 5-7, 9-17, 21-23, 25-63 were pending prior to the above amendment. Claims 42, 52 and 63 are withdrawn pursuant to the Examiner's previous restriction requirement. Claims 14-16, 23 and 30-32 are canceled. Claims 1, 5-7, 11-13, 17, 21-22, 25-29, 30-41, 43-51 and 53-62 are amended to more particularly point out and distinctly claim Applicants' invention. Claims 64-67 are newly presented. Claims 1, 5-7, 9-13, 17, 21-22, 25-29, 30-41, 43-51, 53-62 and 64-67 are therefore being examined.

Figure 4 is amended to correct a clerical error. Support for the amendment is found in the Specification at page 6, lines 23-28.

The Examiner rejected Claims 1, 5, 13-17, 21, 29-34, 41, 43-44, 51, 53-55 and 62 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,640,251 ("Wiget"). With respect to independent Claim 1, the Examiner states:

> As to claim 1, Wiget teaches the invention as claimed including: a method for providing, in a service provider's network, a multicast capability for a customer packet of a virtual private LAN service [e.g., Abstract; col.3, lines 29-39; Figs. la and 1b], comprising:
>
> assigning the virtual private LAN service an Internet Protocol (IP) multicast group address in a private domain of the service provider's network [e.g., col.4, lines 17-25 and 48-50];
>
> at a provider edge device [e.g., a configured IP VPN interface; 13-16, Fig.1 a; col.2, lines 65-67] associated with the virtual private LAN service [e.g., col.4, lines 50- 56], encapsulating the customer packet of the virtual private LAN service in an IP packet designating the IP multicast group address [e.g., Figs. 2a and 2b] and including an Ethernet header designating a multicast Ethernet address associated with the IP multicast group address [e,g,, Figs 3 and 5, col. 5, lines 39-56; note that the ARP request, which contains an Ethernet header

(see Fig. 3) is encapsulated within the packet containing the IP multicast address];

transmitting the IP packet over the service provider's network an IP multicast routing protocol from the provider edge device to a plurality of other provider edge devices associated with the virtual private LAN service [e.g., col.5, lines 24-32]; and

at each of the other provider edge devices associated with the virtual private LAN service, upon receiving the IP packet, recovering the customer packet [e.g., col.5, lines 57-65].

Applicants respectfully traverse the Examiner's rejection. Claim 1 recites an Ethernet multicast address associated with the IP multicast group address:

1. A method, comprising:

assigning an Internet Protocol (IP) multicast group address to a virtual private LAN service;

encapsulating a data packet of the virtual private LAN service in an IP packet designating the IP multicast group address and including an Ethernet header designating a multicast Ethernet address associated with the IP multicast group address; and

transmitting the IP packet using the IP multicast routing protocol.

(emphasis added)

As discussed in Applicants' Specification, at page 6, lines 12-28, the underscored limitations provides a VPLS multicast capability using efficient layer 2 routing algorithms. With this multicast ability, the requirement in the prior art of replicating a data packet to all edge devices, as described in Applicants' Specification, at page 3, lines 1-7, is avoided. The underscored limitations are neither taught nor suggested in Wiget. The Examiner is mistaken regarding the Ethernet header of Wiget's Fig. 3. Rather than an "Ethernet header designating a multicast Ethernet address associated with the IP multicast group address," at col. 3, lines 39-56 – on which the Examiner based his rejection -- Wiget actually teaches that the Ethernet

address is the Ethernet broadcast address:

> In operation, with reference to FIGS. 3, 4, 5 and 6, end station A wants to send an IP packet to end station B on the same logical subnet but connected to different gateways. It is assumed, that the ARP tables 80 and 81 from both end stations are empty. Therefore end station A sends an ARP request 50 to the ethernet broadcast address 51. CPE A, configured with the proper VPN information, checks the source IP address 52 of the ARP request packet 50 against its UVIP interfaces configured on the physical interface. In case of a match, it encapsulates the whole, unmodified, ARP request 50 into an IPsec packet 55 including the VPN identifier 56(equals assigned IP multicast address) and forwards packet 55 to the VPN's multicast address 57 using the configured local IP tunnel-endpoint 58 as source address. CPE A also adds a local ARP entry for end station A in its ARP table 72 for that UVIP interface. (CPE A will forward the ARP request, even if end station B is connected to the same physical network). (emphasis added)

Thus, Wiget does not teach Claim 1's "an Ethernet header designating a multicast Ethernet address associated with the IP multicast group address." Accordingly, Applicants respectfully submit that Claim 1 and its depedent Claims 5 and 13 are each allowable over Wiget. Independent Claims 17, 33, 43 and 53 and their respective dependent Claims 21, 29, 34, 41, 44, 51, 54-55 and 62, each reciting the Ethernet address limitations, are likewise each allowable over Wiget.

Further, Claims 5, 34, 44 and 55 each recite that the "IP multicast group address ... is within a range set aside for use with virtual private LAN services." Such an arrangement, which avoids conflict with customer's native IP addresses, as discussed, for example, in Applicants' Specification, on page 5, lines 23-31, are neither disclosed nor suggested in Wiget. The Examiner's reliance on Wiget's col. 3, lines 1-4 is misplaced, as Wiget merely provides a definition of "Provider Address" in that portion of Wiget's disclosure. Therefore, Claims 5, 34, 44 and 55 further distinguish over Wiget.

Reconsideration and allowance of Claims 1, 5, 13, 17, 21, 29, 33-34, 41, 43-44, 51, 53-55 and 62 are therefore requested.

The Examiner rejected Claims 7, 12, 23, 28, 36, 40, 46, 50, 57 and 61 under 35 U.S.C. § 103(a) as being unpatentable over Wiget, in view of U.S. Patent Application Publication 2004/0165600 ("Lee"). The Examiner relies on Lee's teachings that a DNS name server and the MPLS scheme are known services.

Applicants respectfully traverse the Examiner's rejection. Claims 7, 12, 28, 36, 40, 46, 50, 57 and 61 each depend from their respective parent Claims 1, 17, 33, 43 and 53. Accordingly, Claims 7, 12, 28, 36, 40, 46, 50, 57 and 61 are each allowable over Wiget for the reasons already discussed above with respect to their parent claims. Because Lee provides no relevant teachings with respect to Wuget's deficiency (i.e., an Ethernet header designating a multicast Ethernet address associated with the IP multicast group address), Claims 7, 12, 28, 36, 40, 46, 50, 57 and 61 are each allowable over the combined teachings of Wiget and Lee. Reconsideration and allowance of Claims 7, 12, 28, 36, 40, 46, 50, 57 and 61 are therefore requested.

The Examiner rejected Claims 9-11, 25-27, 37-39, 47-49 and 58-60 under 35 U.S.C. § 103(a) as being unpatentable over Wiget, in view of RFC 2201, Septemter 1997 ("Ballardie"), the Examiner citing Ballardie for teaching source-based and core-based routing protocols.

Applicants respectfully traverse the Examiner's rejection. 9-11, 25-27, 37-39, 47-49 and 58-60 each depend from their respective parent Claims 1, 17, 33, 43 and 53. Accordingly, Claims 9-11, 25-27, 37-39, 47-49 and 58-60 are each allowable over Wiget for the reasons already discussed above with respect to their parent claims. Because Ballardie provides no relevant teachings with respect to Wuget's deficiency (i.e., an Ethernet header

designating a multicast Ethernet address associated with the IP multicast group address), Claims 9-11, 25-27, 37-39, 47-49 and 58-60 are each allowable over the combined teachings of Wiget and Ballardie. Reconsideration and allowance of Claims 9-11, 25-27, 37-39, 47-49 and 58-60 are therefore requested.

The Examiner indicated allowable subject matters in Claims 6, 22, 35, 45 and 56, but for their dependency from rejected base Claims 1, 17, 33, 43 and 53. However, as Claims 1, 17, 33, 43 and 53 are allowable for the reasons set forth above, Applicants respectfully submit that the Examiner's objection to Claims 6, 22, 35, 45 and 56 is erroneous.

Newly presented Claims 64-67 are believed allowable over the prior art of record, at least for the reasons set forth above.

Therefore, for the reasons set forth above, all pending claims (i.e., Claims 1, 5-7, 9-13, 17, 21-22, 25-29, 30-41, 43-51, 53-62, and 64-67) are allowable over the art of record. If the Examiner has any question regarding the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant at 408-392-9250.

Certificate of Transmission: I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office (USPTO) via the USPTO's electronic filing system on May 15, 2009.

Attorney for Applicant(s) Date of Signature 5/15/2009

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